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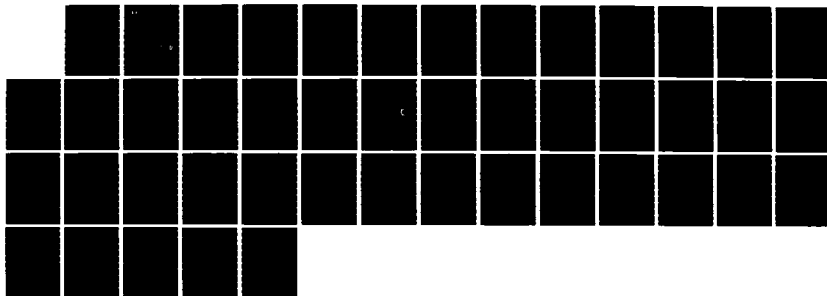
REPORT OF THE ADPA CONFERENCE ON THE ARMY RDA  
LRP/INDUSTRY INTERFACE HELD. (U) AMERICAN DEFENSE  
PREPAREDNESS ASSOCIATION ARLINGTON VA AUG 81

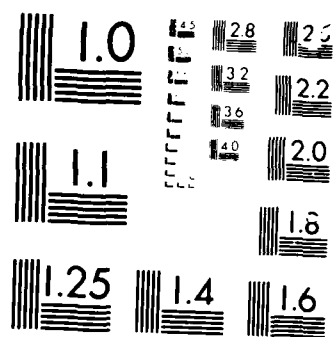
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# AMERICAN DEFENSE PREPAREDNESS ASSOCIATION

DEDICATED TO PEACE WITH SECURITY THROUGH DEFENSE PREPAREDNESS

AD-A169 209

REPORT OF THE ADPA CONFERENCE  
ON THE  
ARMY RDA LRP/INDUSTRY INTERFACE  
FT. BELVOIR  
2-3 JUNE 1981

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Submitted by:

Ralph E. Hawes, General Dynamics Corporation  
Chairman: Army RDA LRP/Industry Interface Conference  
American Defense Preparedness Association

August 1981

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## BACKGROUND AND OBJECTIVES

This was the second conference held at Ft. Belvoir to discuss the interface between Army RDA, Long Range Planning and Industry. The first conference was held in June, 1980, as a result of Dr. Lasser's visits to West Coast contractors to improve technology transfer between the Army and Industry in both directions.

At the first conference a wide range of observations were made and a set of ten recommendations were given to the Army by the industry executive group. A need for a further, more detailed, dialogue on several "gut" issues was recommended. These issues formed the basis for the second conference. The overall objectives for the second conference were,

- To receive an updated view of the Army's long range RDA needs.
- Address in detail key issues such as protection of proprietary rights, industry participation in the Army long range planning process, achieving discipline to a long range plan and high leverage technology focus.
- Make specific recommendations and proposed actions to the Army.

ADPA CONFERENCE  
ARMY RDA LRP/INDUSTRY INTERFACE

DATE: First Day

LOCATION: Main Conference Room - Night Vision and Electro-Optics  
Laboratory, Ft. Belvior

0800	Security Check-In (Secret Clearance)	
	Coffee and Donuts	
0830	Welcome and Administrative Announcements	BG John M. Shea USA (Ret.) Dr. Ed Hutchinson
0835	Overview	Mr. Ralph Hawes, Vice President and General Manager, General Dynamics (Pomona)
0845	Introduction	MG James H. Merryman, USA Assistant Deputy Chief of Staff for Research, Development and Acquisition Dept. of the Army
0900	Intelligence Perspective (Soviet Weapons Modernization Process and Relative Standing of US and USSR in Key Military Technologies)	Dr. Bertram B. Smith, Jr., Science Advisor to Assistant Chief of Staff for Intelligence
1000	BREAK	
1015	Army Environment - Year 2000	Col. Lyn G. Cini, USA, Technical Advisor to the Deputy Chief of Staff for Operations
1115	Transport to Ft. Belvoir Officers' Club	
1130	LUNCH - Comments by LTG Donald Keith, Deputy Chief of Staff for Research, Development and Acquisition	
1400	Air-Land Battle-Year 2000	BG Donald Morelli, Deputy Chief of Staff (Doctrine) US Army Training and Doctrine Command

AGENDA:

- |      |   |   |
|------|---|---|
| 1500 | The Army Long-Range RDA Plan  | Dr. Marvin Lasser,<br>Director of Army<br>Research, Office of the<br>Deputy Chief of Staff<br>for Research, Development<br>and Acquisition      |
| 1545 | RDA LRP Associated Activity Reports   | Mr. Fred Haynes (Fire<br>Support) Research and<br>Engineering, Vought<br>Corporation  |
| 1600 |   | Mr. Robert Huggins (C <sup>3</sup> ),<br>RCA Government Systems<br>Division   |
| 1615 |   | Mr. George F. Steeg (IEW)<br>Association of Old Crows<br>Vice President Plans and<br>Business<br>Development AIL Division,<br>Eaton Corporation |
| 1630 | Putting Planning Back into the PPBS   | Mr. Louis Michael,<br>Special Assistant to the<br>Secretary of Defense (AE)   |
| 1715 | Tomorrow's Work   | Mr. Ralph E. Hawes  |
| 1730 | Refreshments/Dinner, Ft. Belvoir Officer's<br>Club - Comments by General John Vessey,<br>Vice Chief of Staff United States Army |   |

SECOND DAY

- |      |  |                                |
|------|--|--------------------------------|
| 0900 | Industry Executive Workshops   | Mr. Ralph E. Hawes<br>Chairman |
| 0930 | Concurrent Workshops   |                                |
|      | Workshop 1 - Recognition of Proprietary<br>Ideas and Technology<br>Transfusion |                                |
|      | Chairman: Dr. Philip W. Lett   |                                |
|      | Workshop II - Industry Participation in the<br>Army RDA-LRP Process            |                                |
|      | Chairman: Dr. Edward A. Miller   |                                |

AGENDA:

1045 Concurrent Workshops

Workshop III - Achieving Discipline to a  
Long Range Plan

Chairman: Richard S. Dowd

Workshop IV - Technology Focus

Chairman: Henry B. Stelling

1200 Working Lunch - Ft. Belvoir Officer's Club

1300 Combined Session: Reports by Workshop Chairman  
Co-Chairman: R. E. Hawes and Dr. Marvin E. Lasser

1615 Industry Summary to the Army, Pentagon,  
General Keith's office, Room 3E412

1700 ADJOURN



ADPA ATTENDEES

INDUSTRY

Robert L. Brock  
Vice President, Tactical Missiles  
Boeing Aerospace Company  
P.O. Box 3999  
Seattle, WA 98124  
(206) 773-3933

Starr J. Colby  
Manager Advanced RPV/Drone Systems  
Department 56-60, Building 590  
Lockheed  
Missiles and Space Company  
P.O. Box 504  
Sunnyvale, CA 94088  
(408) 742-3814

Richard S. Dowd  
Vice President Martin Marietta  
Aerospace Corporation  
Orlando Division  
P.O. Box 5837  
Orlando, FL 32855  
(305) 352-3344

Dr. Allen B. Gates (Bldg. 2)  
Ford Aerospace and Communications  
Ford Road  
Newport Beach, CA 92660  
(714) 759-6102

T. G. Hame  
Director Technology Programs  
General Dynamics/Pomona Division  
P.O. Box 2507, Mail Zone 44-43  
Pomona, CA 91769  
(714) 620-7511

Ralph E. Hawes  
Vice President/General Manager  
General Dynamics/Pomona Division  
P.O. Box 2507  
Pomona, CA 91769  
(714) 620-7511

Fred E. Haynes  
Vought Corporation  
1725 Jefferson Davis Highway  
Suite 900  
Arlington, VA 22202  
(704) 521-6560

Bobby R. Huggins (204-1)  
RCA Corporation  
Government Systems Division  
Cherry Hill, NJ 08358  
(609) 338-6311

Carver Kennedy  
Director of Productivity and Quality  
Thiokol Corporation  
Ogden, UT

Dr. Morton J. Klein  
Vice President  
Illinois Institute of Technology  
Research Institute  
10 West 35th Street  
Chicago, IL 60616

Wesley H. Kuhrt  
Sr. Vice President for Technology  
United Technologies Corporation  
One Financial Plaza  
Hartford, CT 06101  
(203) 728-7612

Dr. Philip W. Lett  
Director, Defense Engineering  
Chrysler Corporation  
25999 Lawrence Avenue  
Sterling Heights, MI 48078  
(313) 497-0200

Eric M. Levi (M14-10)  
Vice President and Assistant  
General Manager  
Raytheon Company  
Hartwell Road  
Bedford, MA 01730  
(617) 274-7100

ADPA ATTENDEES:

Eldon R. Mangold (Bldg. 75, Room 1259)  
TRW  
Space Systems Group  
One Space Park, CA 90278  
(213) 535-2156

James K. McGuinness  
Defense Equipment Group  
Director of Planning, FMC Corporation  
1105 Coleman Avenue  
San Jose, CA 95108

Dr. Frederick J. Milford  
Assoc. Director  
Battelle Columbus Labs.  
505 King Avenue  
Columbus, OH 43201

Dr. Edward A. Miller  
Vice President  
Federal Systems Group  
Sanders Assoc., Incorporated  
95 Canal Street  
Nashua, NH 03061  
(603) 885-2151

Christopher L. Raber  
Manager Aerospace Strategic  
Planning and Development  
Operation, General Electric Co.  
P.O. Box 8555, Valley Forge  
Space Center  
Philadelphia, PA 19101

George Steeg  
Vice President Plans and Business Division  
AIL Division of the Eaton Corporation  
1725 Jefferson Davis Highway, Suite 404  
Arlington, VA 22202

Henry B. Stelling  
Vice President Requirements Analyses and  
Program  
Rockwell International Corporation  
3370 Mira Loma Avenue, Mail Code 052-AF11  
Anaheim, CA 92803  
(714) 632-1016

ADPA ATTENDEES:

ADPA

BG John M. Shea USA (Ret.)  
Assistant Director  
Advisory Service  
ADPA  
Rosslyn Center, Suite 900  
1700 North Moore Street  
Arlington, VA 22209  
(703) 522-1820

GOVERNMENT

LTC James M. Acklin III  
DAMA Room 3E360  
Pentagon, Washington D.C.  
(202) 695-1449

Jeanne D. Carney  
DCSRDA Room 3E360  
Pentagon, Washington DC 20310  
(202) 697-3460

Col. Lyn G. Cini  
Headquarters  
Department of the Army  
Attention: DEMO-ZD (ODCSOPS)  
Room 3A538  
Pentagon, Washington DC 20310  
(202) 697-9090

LTC. Kenneth A. Evans  
DAMA Room 3D455  
Pentagon, Washington DC 20310  
(202) 697-0106

LTC. Robert W. Gesner  
Headquarters  
Department of the Army  
Attention: DEMO-ZD (ODCSOPS)  
Room 3A538  
Pentagon, Washington DC 20310  
(202) 697-9090

Dr. Marvin E. Lasser  
Director of Army Research  
ODCSRDA Room 3E360  
Pentagon, Washington DC 20310  
(202) 695-1447

MGEN. James H. Merryman  
Assistant Deputy Chief of Staff  
for Research Development and  
Acquisition  
Room 3E412  
Pentagon, Washington DC  
(202) 697-8187

Louis G. Michael  
OSD(AE) Room 3E1074  
Pentagon, Washington DC  
(202) 695-5486

BGEN Donald R. Morelli  
Deputy Chief of Staff for Doctrine  
Building 133  
Headquarters TRADOC  
Fort Monroe, VA 23651  
(804) 727-4445

Bertram B. Smith, Jr.  
DAMI Room 2B479  
Pentagon, Washington DC  
(202) 697-2420

James E. Spates  
Assistant Director of Army Research  
(Laboratory Activities)  
ODCSRDA Room 3E360  
Pentagon, Washington DC 20310  
(202) 697-3460

James W. Sterling  
U.S. Army  
Foreign Science and Technology Center  
Attention: DRXST-SD2  
220 7th Street N.E.  
Charlottesville, VA 22901  
(804) 296-5171

ADPA ATTENDEES:

LTC Michael Ward  
ODCSRDA Room 3E360  
Pentagon, Washington DC 20310  
(202) 697-3460

## SUMMARY OF CONFERENCE PRESENTATIONS

### OVERVIEW:

Ralph E. Hawes welcomed everybody to Belvoir II and gave a short review of the previous conference and the objectives for this one. He indicated that there would be a broader base of ADPA activity concerning long range RDA activities in the future and Industry would be responsible for presenting ideas and recommendations to aid in this process.

### INTRODUCTION:

MG James H. Merryman commented that this conference was being held at a most opportune time. There were significant changes going on in the Army, in organization and fighting, global instead of just Europe and NATO, and forces will have to be quick, ready and effective when they get to the combat zone. We will probably face the enemy with lighter forces and technology will have to solve this problem for us. This is the number 1 challenge. There will probably be less funds for R&D which means what is available must be focussed in the right places. R&D in the 80's will not be the same as the 70's. It will be focussed on what the Army needs in the future that is, lighter forces versus heavy forces. The Army has become serious about long range planning during the past year and will use it to provide direction and focus. The Extended Planning Annex (EPA) will be constrained this year. The recommendations from Belvoir I last year have not been ignored. Progress has been made in changing the D&F level and actions have been taken on procurement issues.

## "THE SOVIET WEAPONS MODERNIZATION PROCESS"

Dr. Bertram B. Smith Jr., introduced Mr. James W. Sterling who gave the presentation. Based on studies for the past 20 years Mr. Sterling indicated that the Soviet modernization system was characterized by a regular output of developed systems. The key features of the system were, continuity/stability/longevity with a single minded purpose. Goals of quantity were maintained while steadily upgrading quality. Expenditures for R&D are lavish but procurement is limited, thereby demonstrating risk minimization policy. Total field capability is optimized rather than the performance of a single weapon system.

The technology base features show systematic barriers to innovation except in high priority areas where extraordinary efforts are made to upgrade essential defense technology areas and compensate for manufacturing inadequacies. The technology base is uneven, some peaks but many weaknesses or lags. Major lags are in microelectronics, computers and manufacturing/production processes such as fabrication, quality control, etc.

Simplicity is a goal coupled with design ingenuity to yield a family of systems. A spectrum of design choices is available from product improvement to a new scientific plan. However, an analysis of recent design choices indicates a high degree of product improvement compared with the development of new-in-principle weapons.

The weapon system life cycle does not appear to be significantly shorter than in the U.S. The development cycle is seven years allowing approximately three generations of systems in twenty years. The technology conversion process is critical and the chief designer is given full authority to execute the total program.

Based on these studies some useful concepts for U.S. R&D planners to consider were given. These are summarized in Figure 1.

FIGURE 1  
SOME USEFUL CONCEPTS FOR US  
R&D PLANNERS

- COMPETITIVE STRATEGY → BROAD DOCTRINAL CONCEPT → INTEGRATED SET OF FUNCTIONAL CAPABILITIES → MATERIEL REQUIREMENTS
- WEAPON ACQUISITION PROCESS AS TOTAL GOAL SEEKING SYSTEM AND CONTINUOUS PROCESS
- BROAD STRATEGY FOR INVENTORY UPGRADING. AFFORDABILITY, TIMING
- TECHNICAL STRATEGY (BASED ON ABOVE) STRESSING PRAGMATIC, ADAPTIVE, MIXED DESIGN STRATEGY
- MAINTENANCE OF DESIGN CAPABILITY. CONTINUOUS GENERATION OF DESIGN OPTIONS. SYSTEMATIZED DESIGN PROCESS
- FAVORABLE DECISION MAKING ENVIRONMENT
- DEALING WITH UNCERTAINTY: TECHNOLOGICAL, FUNDING, THREAT
- TECHNOLOGY BASE IMPORTANT BUT TECHNOLOGY CONVERSION PROCESS CRITICAL
- MOST PLANNED US REFORMS (E.G. OMB A-109) PRESENTLY EXIST IN SOVIET SYSTEM

## "ARMY ENVIRONMENT - YEAR 2000"

Col. Lyn G. Cini indicated that the long range planning horizon of 10 to 15 years will be extended out to 20 years. The current Army Summer Study will determine what the Army needs in the year 2000, including technology. The Army LRP System is shown in Figure 2.

Basic trends for the future were identified as follows: Balance of power in year 2000 - the trend will be towards a multipolar world with continued Soviet power and military investment imbalance. Energy and strategic materials - competition for energy and strategic material resources will be intensified. Development of substitutes will become very important. For example, is there a potential substitute for chromium? Technology - other nations will be accelerating their technology base development with respect to the U.S. Emphasis will be on space and ocean technology.

## "AIRLAND BATTLE 2000"

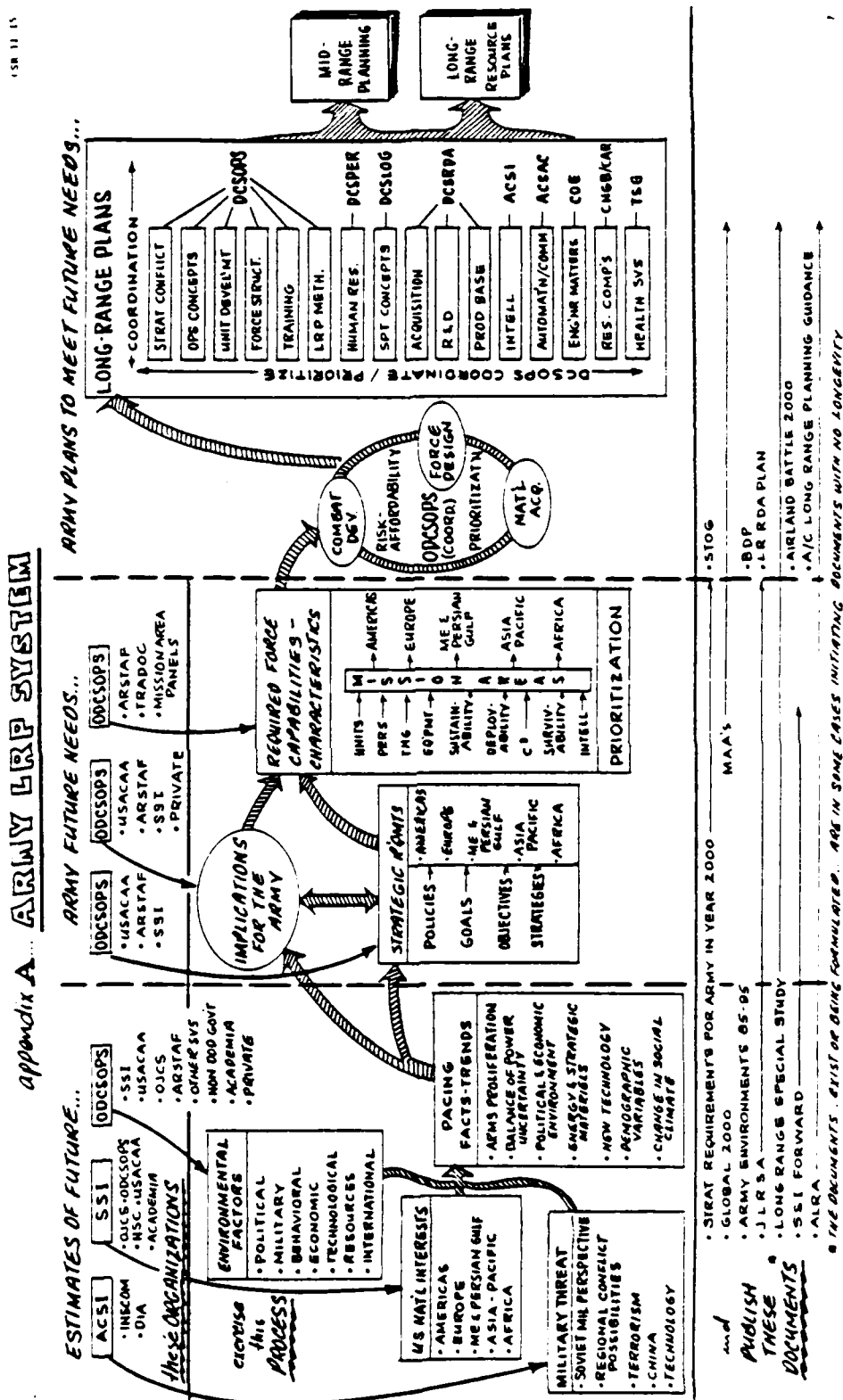
BG Donald Morelli discussed the implications of the environment in year 2000 on operational concepts and force structure. Based on the Soviet trend towards echelons with more flexibility and the strong likelihood that the U.S. would have less manpower, a high technology trend has been chosen. In other words, make technology give the lead on the battlefield.

The operational concept for the year 2000 would rely on initiative, depth, timing, agility and synchronization. That is, use agility, deception and maneuverability to act more rapidly than the enemy can react. This will require the use of our leading technologies in communications, micro-electronics, information, real time processing and redundant systems. It will require automatic reporting of combat status for all forces so that close combat forces have the capabilities of a much greater force. Fire support can be decentralized but combat centralized.



appendix A ARMY LRP SYSTEM

FIGURE 2



## "THE ARMY LONG RANGE RDA PLAN"

Dr. Marvin E. Lasser reviewed the Army's 6.1, 6.2 and 6.3A program areas and indicated that the U.S. leads in the following technologies; micro-electronics, micro-miniaturization, advanced software, autonomous signal processing and dispersed sensors. Looking forward to the 1990 these technologies will support dispersed operations, integrated C<sup>2</sup>, "see the entire battlefield" concepts, attack deep and strategic mobility capabilities.

In current RDA planning the near and mid-term time periods involve programs in procurement and product improvement programs (PIP). In the mid to long term, a transition is planned to develop the Force for the 1990's.

The mission area analysis (MAA's) will be employed to determine operational needs and requirements and supporting development plans. Some key needs for the future are; target acquisition, point target killers, distributed C<sup>3</sup>, long range delivery capability, survivability, enhanced logistics, and improved soldier-machine interface and mobility. Top priorities are Distributed C<sup>3</sup> and Intelligence, Surveillance and Target Acquisition netting (ISTA).

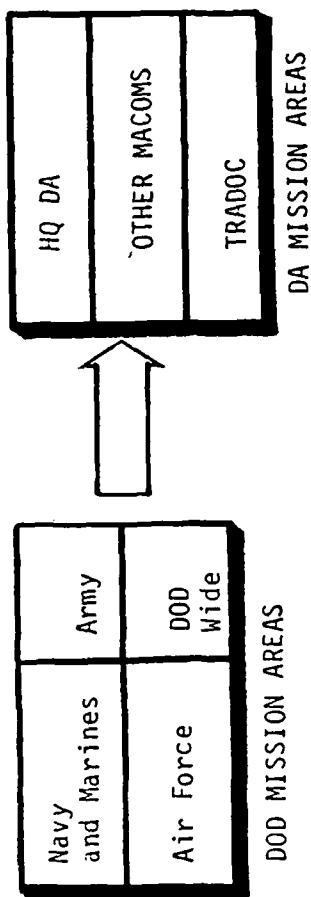
New program thrusts were identified as Very High Speed Integrated Circuits (VHSIC) and Pre-Planned Product Improvement (P<sup>3</sup>I). Dr. Lasser indicated that the Army Long Range RDA plan was now in existence and he was working towards getting it available for review and comment by Industry.

## RDA LRP ASSOCIATED ACTIVITY REPORTS

### FIRE SUPPORT

Mr. Fred E. Haynes presented a summary of the ADPA conference on the Fire Support Mission Area (FSMA) held at the Field Artillery School, Fort Sill, 6-7 November 1981. The purpose of the conference was to acquaint Industry with MAA methodology, brief them on the current FSMA study at the school and solicit suggestions and interaction on FSMA and future MAA efforts. The mission area concept is depicted in Figure 3. The conference consisted mainly of a presentation of FSMAA documentation describing combat development directorates' goals, objectives and tasks; a detailed breakdown of the MAA report, including a valuable "front-to-rear" approach shown in Figure 4; and a listing of 88 deficiencies in the FSMA. Some of the Industry comments were that the FSMAA products are useful as decision-making tools, increase Industry assistance and give improved guidance to developers. Some potential dangers were getting bogged down in a myriad of deficiencies, confusion between systems, needs and affordability and relying too heavily on a validated threat. Also, the process should involve Industry earlier and not be isolated from the development cycle. The recommendations of the Fire Support Technology Group (FSTG) under the chairmanship of Mr. Robert N. Parker are summarized in Figure 5.

FIGURE 3  
MISSION AREA CONCEPT



CLOSE COMBAT LIGHT	CLOSE COMBAT HEAVY	FIRE SUPPORT	AVIATION
AIR DEFENSE	COMBAT SUPT ENG & MINE WARFARE	NBC	COMBAT SERVICE SUPPORT
COMMUNI-CATIONS	COMMAND & CONTROL	TAC SURV RECON & TGT ACON	BATTLEFIELD THEATER NUCLEAR WARFARE

TRADOC MISSION AREAS



OPERATIONAL NEEDS AND REQUIREMENTS



DEVELOPMENT PLANS

FIGURE 4  
FRONT TO REAR APPROACH

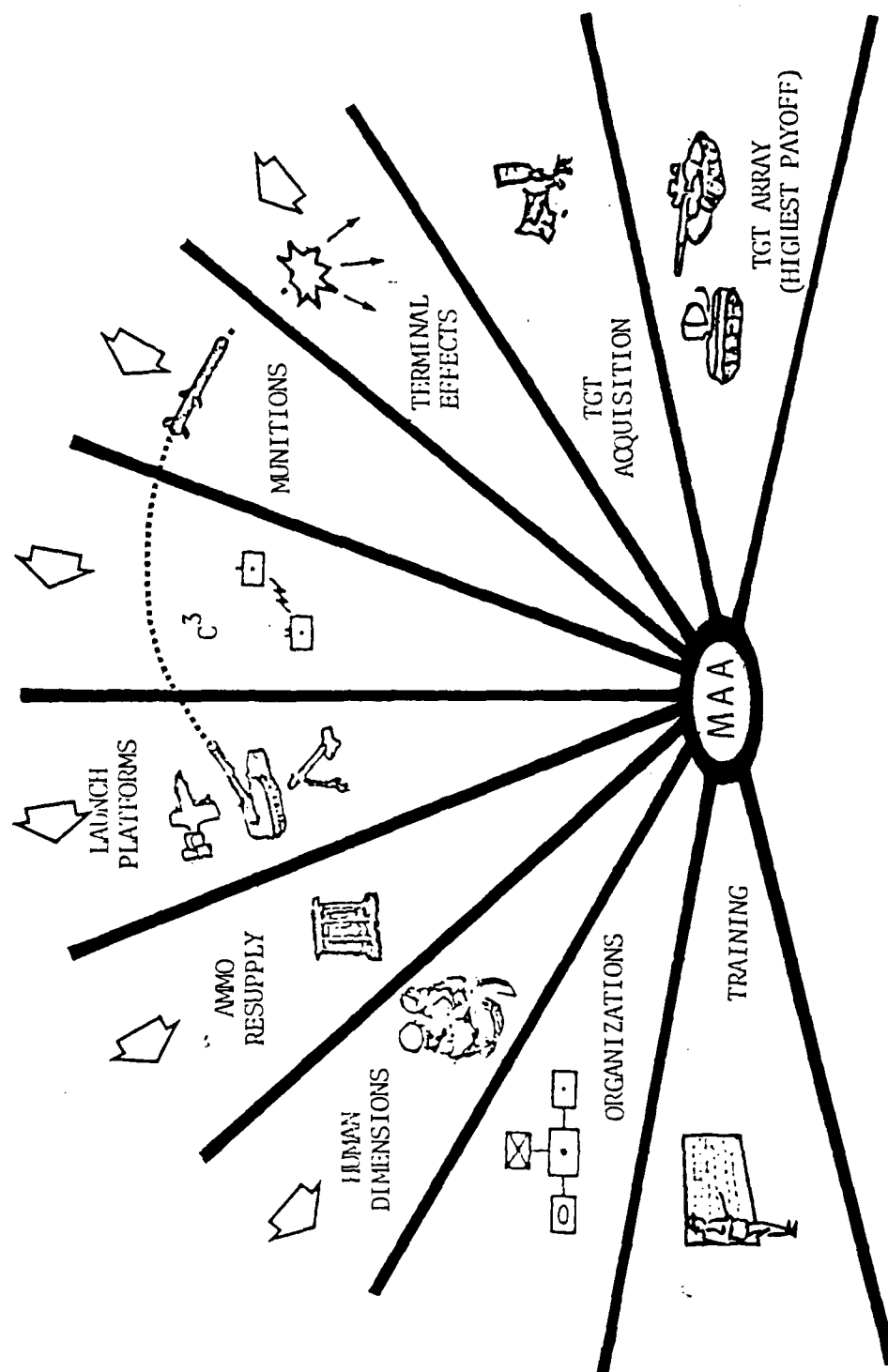


FIGURE 5

SOME FSTG RECOMMENDATIONS

- PURSUE AGGRESSIVE MAA
  - USE FSMAA AS MODEL
  - GO BEYOND PHASE II IN FSMAA, FOCUSING ON INTERDICTION
  - GO NEXT TO CLOSE COMBAT, HEAVY
  - KEEP ATTENTIVE FOR HIGH-PAYOFF "QUICK FIXES"
- BROADEN FSMAA METHODOLOGY
  - INJECT VARIETY OF THREAT EXCURSIONS
  - PROJECT POTENTIAL TRENDS IN THREAT TECHNOLOGY
  - INTEGRATE TECHNOLOGIES FROM OTHER MISSION AREAS (E.G., ELECTRONICS)
  - INTEGRATE CONCERNS AND NEEDS OF OTHER SERVICES
  - DO NOT OVERLOOK SPECIFICS SUCH AS MORTARS, JAMMING, SETBACK, MOVEMENT
- KEEP UP CLOSE USER (TRADOC) - DEVELOPER (DARCOM) COORDINATION IN REVIEWING AND PRIORITIZING DEVELOPMENT PROGRAMS
- INCREASE ARMY-INDUSTRY COOPERATION
  - COLLABORATE IN ALL PHASES OF DEVELOPMENT CYCLE
  - USE INDUSTRY TO HELP IDENTIFY TECHNOLOGICAL OPPORTUNITIES
  - USE INDUSTRY ANALYTICAL RESOURCES
- DO NOT "RATIONALIZE" IDENTIFIED NEEDS FOR SAKE OF AFFORDABILITY
- FORM ARMY-INDUSTRY WORKING GROUP TO EXAMINE RISK-TAKING IN R&D

## COMMUNICATIONS, COMMAND AND CONTROL

Mr. Robert R. Huggins outlined the upcoming ADPA sponsored Industry review on the Army Command and Control Master Plan (AC<sup>2</sup>MP) to be held at Ft. Leavenworth, 20-21 July 1981. The purpose of the review will be to evaluate the 1990 battlefield on which the Army C<sup>3</sup> system must operate including nuclear, CBR and conventional warfare; evaluate how forces must be employed to fight and win and determine what C<sup>3</sup> is required; determine the technical feasibility of developing the required C<sup>3</sup> system and devise a road map by which the Army can develop and field the C<sup>3</sup> system. The industry review team will prepare a written report for ADPA containing comments and recommendations.

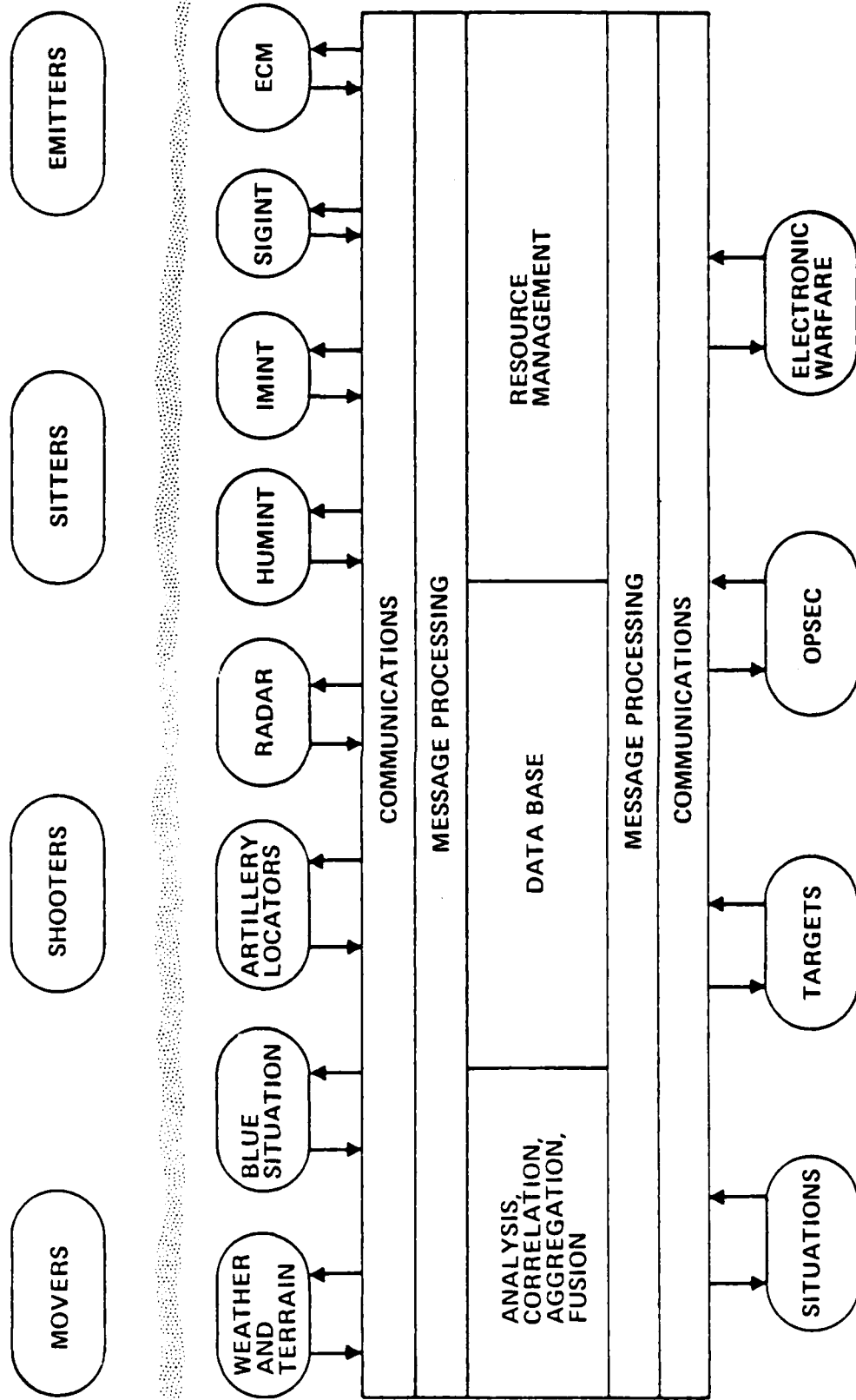
## INTELLIGENCE AND ELECTRONIC WARFARE

Mr. George F. Steeg gave a brief review of IEW MAA activities with the U.S. Army Intelligence Center and School (USAICS) Ft. Huachuca. IEW objectives are to develop movement, character, disposition, type and intention of enemy forces; develop and acquire targets; support operational security; and disrupt, deceive, exploit and target enemy electromagnetic systems. The elements of IEW and depicted in Figure 6. IEW MAA key recommendations are to influence POM 83 with best-efforts analysis, military judgement and deliberate speed on phase II methodology; balance "I" and "EW" to reap the benefits of ECM; emphasize target acquisition using the ISTA concept, deep interdiction and corps support weapon system; perform sensor integration.



# IEW ELEMENTS

FIGURE 6



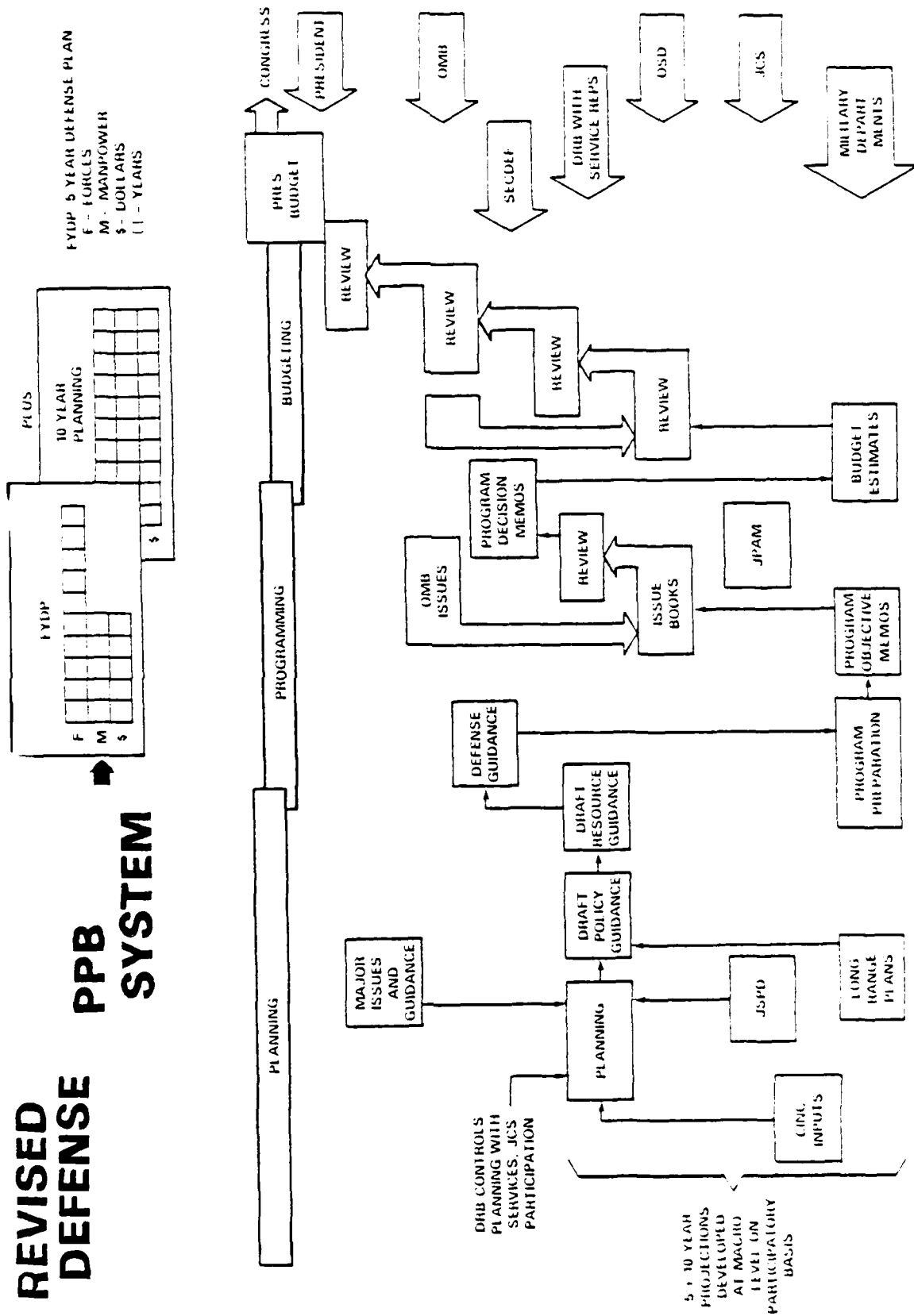


## PUTTING PLANNING BACK INTO THE PPBS

Mr. Louis G. Michael indicated that there was a management revolution in process based on the Carlucci memo of 27 March 1981. There would be more emphasis on the Office of the Under Secretary of Defense for Research and Engineering, and participative management with improved planning and programming. The defense acquisition system will be modified to improve the process, reduce acquisition time and control cost increases for weapons, support and readiness. The DSARC will be revised downwards to two meetings instead of the current four. Everything in the current A109 process will remain, although a reduction in the bureaucratic misuse of the process will be attempted. The revised Defense PPB system is depicted in Figure 7.

# REVISED DEFENSE PPB SYSTEM

FIGURE 7



M J J A S O N D J F M A M J J A S O N D J F

MONTHS

SUMMARY OF REPORTS  
OF THE  
INDUSTRY WORKSHOP SESSION

WORKSHOP I: Recognition of Proprietary Ideas and Technology Transfusion

CHAIRMAN: Dr. Philip W. Lett

1. Observation

- The developers (DARCOM R&D Commands/Laboratories, Industry) do not appear to be involved in the CSR 11-15 LRP System, therefore the "art of the possible" of the technologists does not appear to get involved in the LRP/DCSOPS.

2. Observation

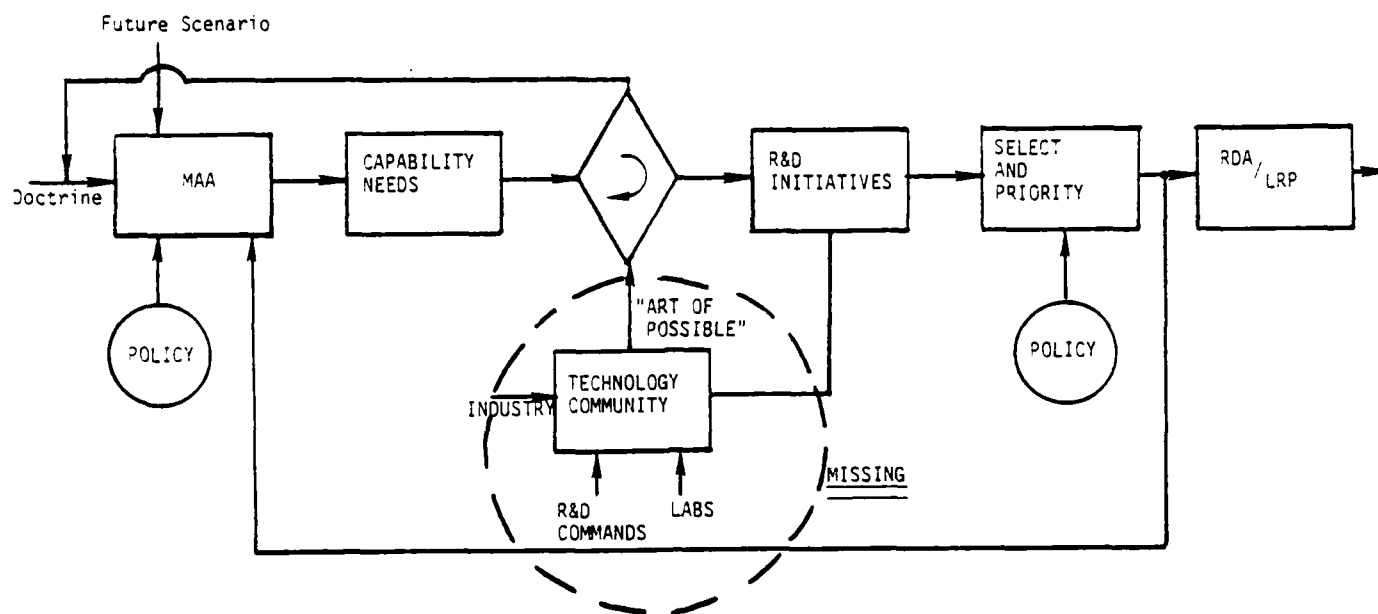
- There appears to be a "missing link" between the MAA assessment process and the technology community that would match capability need and technology efforts and plans.

3. Observation

- There appears to be no consistent treatment of C<sup>3</sup>I/DC<sup>3</sup>I among the government agencies, i.e., OSD, doctrine development (TRADOC) and developing commands, C<sup>3</sup>I is fundamentally an organizational and decision issue, not a technology issue. The Army should define its doctrinal needs for C<sup>3</sup>I by various command levels in order for a meaningful technology focus to occur. This issue is so critical as a force multiplier that the Army should consider a "special projects" approach within the office of the Chief of Staff to better define Army C<sup>3</sup>I needs.

4. Recommendation

- The Army should consider to modify CSR 11-15 to include the following:



5. Recommendation

- The Army be more assertive in getting involved in annual on-site IRAD reviews conducted by the government with technical and LRP people, not just contracts type.

6. Recommendation

- The senior management of the developing commands (DARCOM technology commands) meet with major defense industry companies to review Army needs and company plans for IR&D. The MICOM efforts in the area are to be commended. Consideration should be given to institutionalizing this senior level involvement.

Proprietary Rights

7. Recommendation

- The competitive, free market, profit oriented economy under which industry operates in the US mitigates against early disclosure of R&D initiatives or ideas to the Army.

The Army should concentrate on IRAD information being aligned to their RDA/LRP and involvement by the Army executive level in IRAD reviews with equivalent level company executives. Given that the Army establishes a set of prioritized capability needs within their RDA/LRP, industry would generally be willing to identify those areas in which they are working. Specific insight into "what and how" must be handled on a case by case basis with specific protection/license agreements established between the Army and the company, and between companies with the Army as the facilitator. A published set of ethics guidelines/policy from the Chief of Staff of the Army (or from OSD) would be instrumental in establishing the proper environment to facilitate early R&D disclosure and arriving at goal congruence between industry profit motivation and the Army need to view total R&D (industry and government) efforts to assure themselves that there is more complete coverage of R&D needs. Should the government agree, industry (ADPA) would prepare a draft statement of ethics policy.

#### Postscript

The concentration on Command, Control, Communications and Intelligence/Distributed Command, Control, Communications and Intelligence (C<sup>3</sup>I/DC<sup>3</sup>I) in this particular workshop was in response to a request by the Army to use that particular area of interest as a strawman for dealing with the basic question of proper handling of proprietary ideas from industry and technology transfusion.

WORKSHOP II: Industry Participation in the Army RDA-LRP Process

CHAIRMAN: Dr. Edward A. Miller

1. Observation

- There is no clearly defined route or methodology by which industry can review and comment on the RDA-LRP.

Recommendation

- The Army RDA-LRP should be made available to industry for review and comment when it is available. A "summer study" group, sponsored by the ADPA, should spend a week of intensive study and review, and feed back to DCSRDA.

2. Observation

- Panel members believe that they did not receive an RDA LRP. It received an "Army LRP System".

Recommendation

- The panel should be provided with the RDA LRP when it becomes available.

3. Observation

- The RDA community participation in the "Army LRP System", as shown, is inadequate in the front end (left side of page).

Recommendation

- Army R&D Labs must play a strong role with the user commands (schools) early in the planning process feeding up technology opportunities for the future for consideration in developing mission requirements.
- Industry should participate actively with the Labs, hand in hand, in this interface with the User Schools.

4. Observation

- Industry participation, as an institution as opposed to individual corporations, is inadequate in the formative stages of the mission needs and deficiencies. Ditto the Universities. There does not appear to be a focal point in the TRADOC/School community with which industry can interface.

Recommendation

- There should be Industry-University panels or boards set up to interface with the schools, much as boards now exist to interface with the Labs, to input into and review school generated concepts and requirements. Industry input should include, but not be limited to, modeling, simulations, scenario generation, threat analyses and projections, technology trends assessments. Industry/University participants would be technology specialists/experts different from those normally interfacing with the developer.

5. Observation

- Mission areas overlap. Planning at the schools seem to be "bottoms up". There does not appear to be a "top down" coordinated "systems" approach to developing the MAA's. Communications, for example, is a mission area, yet it is pervasive, in that it is crucial to at least several other mission areas.

Recommendation

- CACDA should take a top down approach to the MAA's before it's too late to make sure that all the pieces, when generated by the schools, will integrate and "fit".



6. Observation

- The schools do not appear to interact or interface with each other sufficiently to assure that critical needs in one mission area are in fact addressed by the cognizant school/developer.

Recommendation

- CACDA should assure that this integration takes place. Each school should take a "road show" to other schools to inform and integrate mission needs. DARCOM Labs mentioned in Item 3 should participate in these briefings.

7. Observation

- DARCOM liaison with the schools appears to be erratic and inconsistent across the spectrum of schools.

Recommendation

- Establish some form of permanent liaison between DARCOM and each school in the formulation of mission needs, as an input to the RDA LRP process.

8. Observation

- Mission Area Analyses have resulted in a proliferation of needs for new development projects.

Recommendation

- The results of the several MAA's will probably identify many common needs and/or deficiencies. These should be integrated at the CACDA/TRADOC level, and consolidated. The final "needs" should be expressed in terms of functional needs or specifications not projects, for the development community to assess and determine development project needs in the form of modification to existing equipment or new start.

- MAA's should result in a clear and crisp, short, concise definition of the need from a functional standpoint. Current capabilities and deficiencies should be listed.

9. Observation

- DARCOM does not seem to have a systems orientation similar to USAF Systems Command. Ditto the Labs.

Recommendation

- Establish within DARCOM system level organizations with top down approach to problem solving. See that each Lab has a systems function or at least an in-house "advanced concepts" lab capable of top down layout of conceptual systems, synthesis and analysis.

WORKSHOP III: Achieving Discipline in a Long Range Plan

CHAIRMAN: Richard S. Dowd

1. Observation

- Industry primarily looks at the POM as the "validated" Army LRP. Industry recognizes this as short range, but it has fiscal stability to a limited degree and therefore is a more certain basis on which to make investment decisions. It is recognized that this is not sufficient for long range R&D planning and support is given to the proposed 15 year planning cycle.

2. Observation

- The Army needs a way to spread their R&D needs to more than just the immediate defense contractor community. A published long range plan with identified areas of capability need and technology interest would be very useful in filling this need. LRP requires a periodic update - Industry does it annually.

3. Observation

- The Army, to the largest measure, must recognize they are primarily responsible for discipline in the RDA/LRP. Existence of a definitive plan, consisting of R&D prioritization and stability of funding are essential. Lessening of micro-management by OSD and Congress could further stabilize the plan environment, but the Army must take the initiative to stabilize this LRP. A major assistance to reducing the impact of micro-management by external agencies (external to the Army) is a coordinated LRP that would permit the Army to "speak with one voice". It will also provide an official plan for industry to follow. Its own LRP stability will also be enhanced by statement of needs vs infatuation with technology "hobby" approaches.

4. Observation

- The Army must recognize that our competitive, free market, profit motivated economy, tends to drive industry to continue to push/sell ideas even when the acquisition process may have rejected an idea or device approach. This is not necessarily unhealthy and need not be LRP de-stabilizing if the Army has internal stability in their LRP process. Their own internal review process is critically needed.

WORKSHOP IV: Technology Focus

CHAIRMAN: Henry B. Stelling

1. Observation

- Industry technology efforts have proceeded pretty much in the absence of guidance from the Army.
- Industry can benefit and can assist the Army by participating in the Mission Area Analyses which support the Army Long Range Plan.
- Technology focus in an interactive process that must be a part of the Army planning process from the beginning.
- The Army Science and Technology Objectives guide can be a useful document if it describes a technology road map which support long range planning objectives.
- Army involvement in the definition of contractor IR&D is low key and questionable as to its effectiveness.

Recommendation

- Army guidance documents and reviews of industry IR&D should be included as part of the Long Range Planning Process. A study of how best to accomplish this should be initiated.

2. Observation

- The Army understanding of the factors which influence industry in the selection of in-house technology effort is not well understood.

Recommendation

- To reduce the risk associated with technology investment decisions, Army guidance needs to be credible. Year to year

changes should be minimized and Army funding for both contractor inputs to Long Range Planning and technology efforts need more attention.

3. Observation

- Technology efforts critical for near term requirements such as support for the Rapid Deployment Force can benefit from a systems approach such as the case for VHSIC.

Recommendation

- Establish an Army Office responsible for guiding and integrating Army and industry technology efforts associated with such efforts as:
  - Point Target Killing
  - Long Range Delivery Capability
  - Target Acquisition
  - Distributed C<sup>3</sup>
  - Survivability
  - Enhanced Logistics Capability
  - Mobility
  - Improved Soldier-Machine Interface

4. Observation

- Selection of technology areas at this time is without the benefit that should accrue from the Army Long Range Planning effort. The workshop identified items which support the needs of the Army as covered during the first day. The discussion range from broad areas to specific technologies.

Recommendation

- The following items are suitable for action or increased emphasis in the near term:
  - Millimeter Wave Systems - Emphasis on low cost and maintainability
  - Light weight armor

Light weight explosives including liquid propellents  
NBC protection for personnel and equipment  
Manufacturing technology. (Here is a high pay-off area  
which should be investigated for action that can be  
taken in the next six months)  
Artificial intelligence  
Fiber optics for remoting battlefield emitters  
Non-linear integrated optic systems for real time process-  
ing of sensor data  
Secure voice and voice recognition for interfacing weapon  
systems  
Fire and forget seeker technology  
Aerosols  
Adaptive HF  
High power microwave technology for weapons and ECM

## INDUSTRY SUMMARY TO THE ARMY

The Conference Chairman, Ralph E. Hawes, opened the briefing to LTG D. R. Keith, Deputy Chief of Staff Research Development and Acquisition, and MGEN M. Brady, Assistant Deputy Chief of Staff for Operations and Plans, with a compliment to the Army on its presentations to the industry executives. It was obvious that the Army has done a significant amount of work since the 1980 conference (Belvoir 1) and was on the verge of having a RDA LRP that could be very useful in improving the Army/Industry interface. Ralph Hawes introduced the four industry workshop chairmen in order for each of them to present a short summary of the workshop observations and recommendations. Mr. Hawes indicated that a conference final report will be forwarded to the Army from ADPA within 60 to 90 days.

Some of LTG Keith's comments during the workshop reports were as follows:

- It is because of technology we can think of DC<sup>3</sup> but the Army has not decided on an architecture yet.
- The Army wants to buy the technology that has potential for growth.
- The ethical guidelines suggested has merit, ADPA and NSIA help would be welcome.
- The idea of DARCOM plan review by ADPA appears feasible.
- The question of overall MAA coordination is a point well taken.
- Getting technology forecasts from industry is a good point.



- The LRP will explain our program, the POM will be just a financial plan.
- Agrees with the STOG remarks, industry should help in making revisions.
- The MENS is not solidified as to its new form yet. The Carlucci memo is correct.

LTG Keith complimented the presentors for a "good report" and the conference attendees for producing a tangible output in a short time. He is looking forward to receiving the full conference report and seeing some of the recommendations implemented.

## ADDITIONAL COMMENTS AND SOME ITEMS FOR THE FUTURE

Since the distribution of the conference minutes, reviews of the workshop recommendations by individual attendees have surfaced some additional pertinent information and suggestions for the future. To make this report more complete and, hopefully, more useful this data is presented for all attendees to consider.

### ADDITIONAL COMMENTS ON WORKSHOP REPORTS

#### Recognition of Proprietary Ideas and Technology Transfusion:

##### Observation

- The developers (DARCOM R&D Commands/Laboratories, Industry) do not appear to be involved in the CSR 11-15 LRP System, therefore, the "art of the possible" of the technologists does not appear to get involved in the LRP/DCSOPS.

##### Comment

- The observation made by the ADPA panel is an apparent shortcoming which is not real, but represents the fact the Army did not present to the ADPA panels the details of how the subelements of planning described in CSR 11-15 actually operate. This results from the fact that the details of the subplans under the CSR are currently evolving. For RDA planning, such a description is available.

##### Observation

- There appears to be a "missing link" between the MAA assessment process and the technology community that would match capability need and technology efforts and plans.

#### Comment

- This observation is also only apparent and there is, in fact, a connectivity between the MAA assessment process and the technology community. On the long-range RDA plan worksheets, the MAA deficiency against which the programs are focussed is identified. It is also true that in the MAA process, the technology community is supposed to be actively and continuously involved.

#### Recommendation

- The Army should consider modifying CSR 11-15 to include the technology community (see diagram, page 25).

#### Comment

- This is not appropriate to CSR 11-15. The comment is true in the sense that it was not apparent (as was identified in the two-previous comments). In the long-range RDA planning process, the art of the possible and technology opportunities for the future are fully considered. If it is true that the long-range plan system under CSR 11-15 is an iterative process, then the recommendation made by the workshop should be implemented in accordance with the existing staff action procedures. The diagram properly belongs in RDA planning which does provide input and revision to Army doctrine and scenario through the CSR planning system.

#### Comment

- Primary "developer" involvement is in the combat developments and materiel systems development processes, no details of which are given in CSR 11-15.

In those processes, the "developers" link should be into MAA. CSR 11-15 does not need to be modified as shown by the diagram, but TRADOC might very well want to consider such an approach.

#### Recommendation

- The Army be more assertive in getting involved in annual on-site IRAD reviews conducted by the government with technical and LRP people, not just contracts type.

#### Comment

- There are several initiatives underway to improve Army management visibility in IR&D. A new highly competent IR&D manager has been appointed within DARCOM. Laboratory directors are personally becoming involved in IR&D on-site reviews. The Deputy Assistant Secretary of the Army (Research and Development) is planning to attend several IR&D on-site reviews. The Deputy Under Secretary for Operations Research, Director of Army Research and DA Staff Technical Advisors are being encouraged to participate. General Lunn will be sending personal letters to the DARCOM R&D Command commanders emphasizing the importance of IR&D and urging senior management participation in the technical evaluations and on-site reviews. As suggested, improving the Army-IR&D interface offers important benefits to both parties and is an essential element of long range RDA planning.

## INDUSTRY PARTICIPATION IN THE ARMY RDA-LRP PROCESS

### Recommendation

- The panel should be provided with the RDA LRP when it becomes available.

### Comment

- The Army Long-Range RDA plan will be available to industry in early fall through the DARCOM Tri-Service Industry R&D Information Centers.

## SOME ITEMS FOR THE FUTURE

A number of the industry workshop recommendations will require ADPA sponsorship and leadership coupled with Industry support for them to be effectively implemented. These are:

- The formation of a "Summer Study" group to spend a week reviewing the RDA-LRP and feeding back specific comments and recommendations to DCSRDA.
- Draft a set of ethics guidelines/policy which would be instrumental in establishing a protective environment for the early disclosure of embryonic concepts and technologies by industry to RDA long range planners. This effort should be coordinated with NSIA.
- Recommend revisions to the Army Science and Technology Objective Guide (STOG) to describe a technology roadmap which supports the RDA-LRP objectives.
- Continue the current MAA study groups and perform tasks in support of MAA development. Expand the coverage as more

MAA's become available for review by industry representatives. Assist in making the integration function more effective in the overall MAA process particularly supporting the essential functions of cooperation and exchange of information between the Army technology community (laboratories) and the user communities.

- Encourage industry participation and feedback in assuring that the technology focus represented in the Army long-range plan is correct and covers all known key areas.
- Continue to work with the Army on extremely difficult problems that the Army faces. For example, the issue of Industry's drive to push/sell ideas even when the acquisition process may have rejected the idea.

#### Post Script

A key issue identified at Belvoir I that was not discussed at Belvoir II was the adequacy of threat information available to Industry. It would seem appropriate to request ADPA to take on the following task.

- Determine what threat information Industry needs from the intelligence community and recommend how should Industry get this information in order to help perform more effective long range technology planning.

END

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